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ABSTRACT

This fact sheet on blood cholesterol examines the connection between cholesterol and heart disease, lists risk factors for heart disease that can and cannot be controlled, points out who can benefit from lowering blood cholesterol, distinguishes between blood and dietary cholesterol, describes low density lipoprotein and high density lipoprotein types of cholesterol, reviews factors that affect blood cholesterol, and urges adults to have their blood cholesterol checked. Guidelines are presented for heart-healthy living, such as choosing foods low in total fat and saturated fat, choosing foods high in starch and fiber, maintaining a healthy weight, and being more physically active. Buying tips and preparation tips are offered for various types of food. Other guidelines discuss using food labels, eating out the heart healthy way, making physical activity part of one's routine, and losing weight sensibly. A question and answer section offers guidance on such concerns as cholesterol levels in children, triglycerides, and impact of blood cholesterol on longevity. Three tables list: (1) saturated fat, total fat, cholesterol, calories, and sodium for some basic foods; (2) food label claims; and (3) recommended amounts of saturated and total fat based on calorie consumption. (JDD)

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ED 379 270

FACTS ABOUT

Blood Cholesterol

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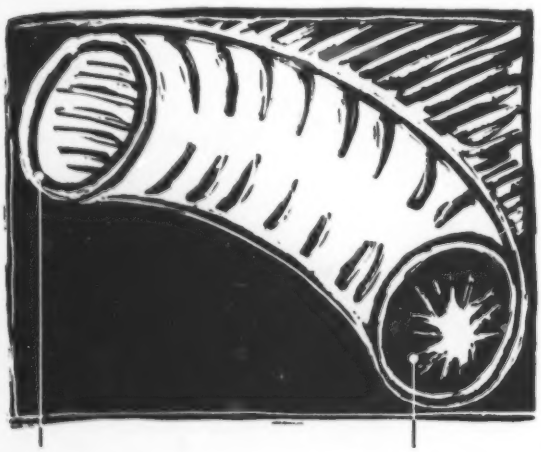
Why Blood Cholesterol Matters

Blood cholesterol plays an important part in deciding a person's chance or risk of getting coronary heart disease (CHD). The higher your blood cholesterol level, the greater your risk. That's why high blood cholesterol is called a risk factor for heart disease. Did you know that heart disease is the number one killer of men and of women in the United States? About a half million people die each year from heart attacks caused by CHD. Altogether 1.25 million heart attacks occur each year in the United States.

Even if your blood cholesterol level is close to the desirable range (see page 3), you can lower it and reduce your risk of getting heart disease. Eating in a heart-healthy way, being physically active, and losing weight if you are overweight are things everyone can do to help lower their levels. This fact sheet will show you how. But first, a few things you ought to know...



Normal artery wall

Abnormal narrowed artery opening

The Blood Cholesterol—Heart Disease Connection

When you have too much cholesterol in your blood, the excess builds up on the walls of the arteries that carry blood to the heart. This buildup is called "atherosclerosis" or "hardening of the arteries." It narrows the arteries and can slow down or block blood flow to the heart. With less blood, the heart gets less oxygen. With not enough oxygen to the heart, there may be chest pain ("angina" or "angina pectoris"), heart attack ("myocardial infarction"), or even death. Cholesterol buildup is the most common cause of heart disease, and it happens so slowly that you are not even aware of it. The higher your blood cholesterol, the greater your chance of this buildup.

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Other Risk Factors for Heart Disease

A high blood cholesterol level is not the only thing that increases your chance of getting heart disease. Here is a list of known risk factors:

Factors You Can Do Something About
- Cigarette smoking
- High blood cholesterol (high total and LDL-cholesterol)
- Low HDL-cholesterol
- High blood pressure
- Diabetes
- Obesity/overweight
- Physical inactivity

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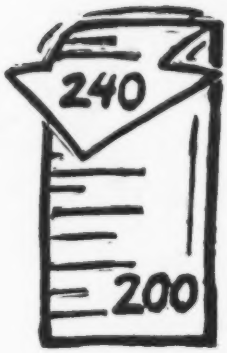
Factors You Cannot Control

- Age:
  - 45 years or older for men
  - 55 years or older for women
- Family history of early heart disease (heart attack or sudden death):
  - father or brother stricken before the age of 55
  - mother or sister stricken before the age of 65

The more risk factors you have, the greater your chance of heart disease. Fortunately, most of these risk factors are things you can do something about.

Who Can Benefit From Lowering Blood Cholesterol?

Almost everyone can benefit from lowering his or her blood cholesterol. Lowering cholesterol slows the fatty buildup in the arteries, and in some cases can help reduce the buildup already there. And, if you have two or more other risk factors for heart disease or already have heart disease, you have a great deal to gain from lowering your high blood cholesterol. In this case, lowering your level may greatly reduce your risk of any more heart problems.



Many Americans have had success in lowering their blood cholesterol levels. From 1978 to 1990, the average blood cholesterol level in the U.S. dropped from 213 mg/dL to 205 mg/dL.

Cholesterol—In Your Blood, In Your Diet

Cholesterol is a waxy substance found in all parts of your body. It helps make cell membranes, some hormones, and vitamin D. Cholesterol comes from two sources: your body and the foods you eat. Blood cholesterol is made in your liver. Your liver makes all the cholesterol your body needs. Dietary cholesterol comes from animal foods like meats, whole milk dairy foods, egg yolks, poultry, and fish. Eating too much dietary cholesterol can make your blood cholesterol go up. Foods from plants, like vegetables, fruits, grains, and cereals, do not have any dietary cholesterol.

LDL- and HDL-Cholesterol: The Bad and The Good

Just like oil and water, cholesterol and blood do not mix. So, for cholesterol to travel through your blood, it is coated with a layer of protein to make a "lipoprotein." Two lipoproteins you may have heard about are low density lipoprotein (LDL) and high density lipoprotein (HDL). LDL-cholesterol carries most of the cholesterol in the blood. Remember, when too much LDL-cholesterol is in the blood, it can lead to cholesterol buildup in the arteries. That is why LDL-cholesterol is called the "bad" cholesterol. HDL-cholesterol helps remove cholesterol from the blood and helps prevent the fatty buildup. So HDL-cholesterol is called the "good" cholesterol.

Things That Affect Blood Cholesterol

Your blood cholesterol level is influenced by many factors. These include:

- What you eat—High intake of saturated fat, dietary cholesterol, and excess calories leading to overweight can increase blood cholesterol levels. Americans eat an average of 12 percent of their calories from saturated fat, and 34 percent of their calories from total fat. These intakes are higher than what is recommended for the health of your heart. The average daily intake of dietary cholesterol is 220-260 mg for women and 360 mg for men.

- **Overweight**—Being overweight can make your LDL-cholesterol level go up and your HDL-cholesterol level go down.

- **Physical activity**—Increased physical activity lowers LDL-cholesterol and raises HDL-cholesterol levels.

- **Heredity**—Your genes partly influence how your body makes and handles cholesterol.

- **Age and Sex**—Blood cholesterol levels in both men and women begin to go up around age 20. Women before menopause have levels that are lower than men of the same age. After menopause, a woman's LDL-cholesterol level goes up—and so her risk for heart disease increases.

Have Your Blood Cholesterol Checked

All adults age 20 and over should have their blood cholesterol (also called "total" blood cholesterol) checked at least once every 5 years. If an accurate HDL-cholesterol measurement is available, HDL should be checked at the same time. If you do not know your total and HDL levels, ask your doctor to measure them at your next visit.

Total and HDL-cholesterol measurements require a blood sample that is taken from your arm or finger. You do not have to fast for this test. If you have had your total and HDL-cholesterol checked, check the chart to see how they measure up.

Blood cholesterol levels of under 200 mg/dL are called "desirable" and put you at lower risk for heart disease. Any cholesterol level of 200 mg/dL or more increases your risk; over half the adults in the United States have levels of 200 mg/dL or greater. Levels between 200 and 239 mg/dL are "borderline-high." A level of 240 mg/dL or greater is "high" blood cholesterol. A person with this level has more than twice the risk of heart disease compared to someone whose cholesterol is 200 mg/dL. About one out of every five American adults has a high blood cholesterol level of 240 mg/dL or greater.

TOTAL BLOOD CHOLESTEROL AND HDL CHOLESTEROL CATEGORIES

Total Cholesterol
Less than 200 mg/dL .....Desirable

200 to 239 mg/dL .....Borderline-High

240 mg/dL or greater.....High

HDL-Cholesterol
Less than 35 mg/dL .....Low HDL-cholesterol

Note: These categories apply to adults age 20 and above.

Unlike total cholesterol, the lower your HDL, the higher your risk for heart disease. An HDL level less than 35 mg/dL increases your risk for heart disease. The higher your HDL level, the better.

In certain cases, it may be necessary to have your LDL-cholesterol checked, too, because it is a better predictor of heart disease risk than your total blood cholesterol. You will need to fast. That means you can have nothing to eat or drink but water, coffee, or tea, with no cream or sugar, for 9 to 12 hours before the test.

If your doctor has checked your LDL level, use the chart below to see how it measures up.

LDL-CHOLESTEROL CATEGORIES

Less than 130 mg/dL .....Desirable

130 to 159 mg/dL .....Borderline-High Risk

160 mg/dL and above....High Risk

Note: These categories apply to adults age 20 and above.

If your LDL-cholesterol level is high or borderline-high and you have other risk factors for heart disease, your doctor will likely plan a treatment program for you. Following an eating plan low in saturated fat and cholesterol and increasing your physical activity is usually the first and main step of treatment. Some people will also need to take medicine. *(If you have high blood cholesterol and would like more details on what it means and what you should do about it, see the ordering information on page 13.)*

Guidelines For Heart-Healthy Living

Whatever your blood cholesterol level, you can make changes to help lower it or keep it low and reduce your risk for heart disease. These are guidelines for heart-healthy living that the whole family (including children ages 2 and above) can follow:

1) Choose foods low in saturated fat.

All foods that contain fat are made up of a mixture of saturated and unsaturated fats. Saturated fat raises your blood cholesterol level more than anything else you eat. The best way to reduce blood cholesterol is to choose foods lower in saturated fat. One way to help your family do this is by choosing foods such as fruits, vegetables, and whole grains—foods naturally low in total fat and high in starch and fiber.

2) Choose foods low in total fat.

Since many foods high in total fat are also high in saturated fat, eating foods low in total fat will help your family eat less saturated fat. When you do eat fat, substitute unsaturated fat—either polyunsaturated or monounsaturated—for saturated fat. Fat is a rich source of calories, so eating foods low in fat will also help you eat fewer calories. Eating fewer calories can help you lose weight—and, if you are overweight, losing weight is an important part of lowering your blood cholesterol. (Consult your family doctor if you have a concern about your child's weight.)

3) Choose foods high in starch and fiber.

Foods high in starch and fiber are excellent substitutes for foods high in saturated fat. These foods—breads, cereals, pasta, grains, fruits, and vegetables—are low in saturated fat and cholesterol. They are also lower in calories than foods that are high in fat. But limit fatty toppings and spreads like butter and sauces made with cream and whole milk dairy products. Foods high in starch and fiber are also good sources of vitamins and minerals.

When eaten as part of a diet low in saturated fat and cholesterol, foods with soluble fiber—like oat and barley bran and dry peas and beans—may help to lower blood cholesterol.

4) Choose foods low in cholesterol.

Remember, dietary cholesterol can raise blood cholesterol, although usually not as much as saturated fat. So it's important for your family to choose foods low in dietary cholesterol.

THE NATIONAL CHOLESTEROL EDUCATION PROGRAM RECOMMENDATIONS

The National Cholesterol Education Program (NCEP) recommends that all healthy Americans ages 2 and above adopt an eating pattern lower in saturated fat and cholesterol to lower their blood cholesterol. The recommended eating pattern for everyone in the family over 2 years old is:

- **less than 10 percent of calories from saturated fat.**
- **an average of 30 percent of calories or less from total fat.**
- **less than 300 mg a day of dietary cholesterol.**

These goals are to be averaged over several days. Refer to table 3 on page 20 for guidance on the recommended intakes of saturated fat and cholesterol.

Dietary cholesterol is found only in foods that come from animals. And even if an animal food is low in saturated fat, it may be high in cholesterol; for instance, organ meats like liver and egg yolks are low in saturated fat but high in cholesterol. Egg whites and foods from plant sources do not have cholesterol.

5) Be more physically active.

Being physically active helps improve blood cholesterol levels: it can raise HDL and lower LDL. Being more active also can help you lose weight, lower your blood pressure, improve the fitness of your heart and blood vessels, and reduce stress. And being active together is great for the entire family.

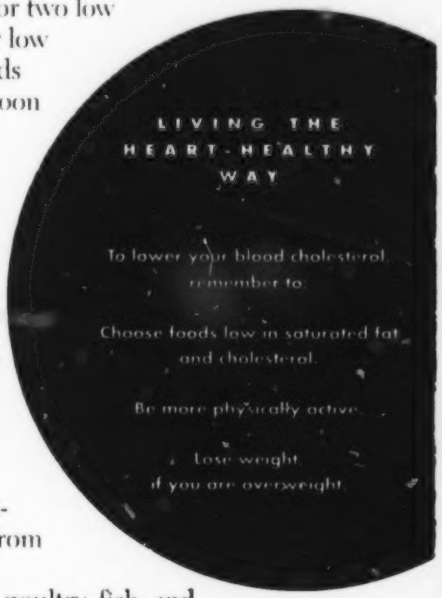
6) Maintain a healthy weight, and lose weight if you are overweight.

People who are overweight tend to have higher blood cholesterol levels than people of a healthy weight. Overweight adults with an "apple" shape—bigger (pot) belly—tend to have a higher risk for heart disease than those with a "pear" shape—bigger hips and thighs.

Whatever your body shape, when you cut the fat in your diet, you cut down on the richest source of calories. A family eating pattern high in starch and fiber instead of fat is a good way to help control weight. Do not go on crash diets that are very low in calories since they can be harmful to your health. If you are overweight, losing even a little weight can help to lower LDL-cholesterol and raise HDL-cholesterol.

Making The Guidelines Work: Eat the Heart-Healthy Way

Look at how your family eats now and begin to plan. You don't have to cut out all high saturated fat, high cholesterol foods. Just substitute one or two low saturated fat or low cholesterol foods each day, and soon you will reach your goal of heart-healthy eating for you and your family. By making the changes slowly, you are more likely to stick with your new eating plan.


LIVING THE HEART-HEALTHY WAY
To lower your blood cholesterol, remember to:
Choose foods low in saturated fat and cholesterol.
Be more physically active.
Lose weight if you are overweight.

Choose heart-healthy foods from different food groups—meat, poultry, fish, and shellfish; dairy foods; eggs; fruits and vegetables; breads, cereals, pasta, rice and other grains, and dry peas and beans; fats and oils; and sweets and snacks. Choose the number and size of portions to help you reach and stay at your desirable weight. Eating a variety of foods each day will help your whole family get the nutrients you need. Use these tips to choose foods low in saturated fat and cholesterol:

LEAN* CUTS OF MEAT

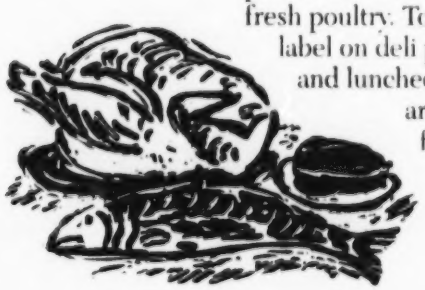
Beef	**Eye of the round, Top round**
Veal	**Shoulder, Ground veal, Cutlets, Sirloin**
Pork	**Tenderloin, Sirloin, Top loin**
Lamb	**Leg, Shank**

***Lean defined as less than 10 grams of fat and 4.5 grams or less of saturated fat in 3 cooked ounces, as currently used on food labels.**

Meat, poultry, fish, and shellfish

Buying tips:

- Choose lean cuts of meat. Choose fish and skinless poultry more often; they are generally lower in saturated fat than meat. Eat moderate portions—no more than about 6 ounces a day (a 3-ounce portion is about the size of a deck of cards).
- Look for meats labeled "lean" or "extra lean."
- Limit organ meats like liver, sweetbreads, and kidneys. Organ meats are high in cholesterol, even though they are fairly low in fat.
- Limit high fat processed meats like bacon, bologna, salami, hot dogs, and sausage.
- Remember that some chicken and turkey hot dogs are lower in saturated fat and total fat than pork and beef hot dogs. There are also "lean" beef hot dogs that are low in fat and saturated fat. Usually, processed poultry products have more fat and cholesterol than fresh poultry. To be sure, check the nutrition label on deli products such as hot dogs and luncheon meats to find those that are lowest in fat and saturated fat.



- Try fresh ground turkey or chicken made from white meat, like the breast.
- Limit use of goose and duck. They are higher in saturated fat, even with the skin removed.
- Choose shellfish occasionally. Shellfish has little saturated fat in general, but its cholesterol content varies—some (like squid, shrimp, and oysters) are fairly high while others (like scallops, mussels, and clams) are low.
- Buy canned fish packed in water, not oil.

FISH OILS

You may have heard that a type of unsaturated fat called "omega-3 fatty acids" found in fish and shellfish is good for your heart. Health benefits have not been proven. Still, any fresh or frozen fish is a good food choice because it is low in saturated fat. Avoid fish oil *pills* because they are high in fat and calories, and they may have long-term side effects.

Preparation tips:

- Trim fat from meat and remove skin from poultry before eating.
- Bake, broil, microwave, poach, or roast instead of frying. When you do fry, use a nonstick pan and nonstick cooking spray or a small amount of vegetable oil to reduce the fat.
- When you roast, place the meat on a rack so the fat can drip away.
- Brown ground meat and drain well before adding other ingredients.
- Use fat free ingredients like fruit juice, wine, or defatted broth to baste meats and poultry.

Dairy foods

Buying tips

- Drink skim or 1 percent milk rather than 2 percent and whole milk.
- When looking for hard cheeses, go for versions that are "fat free," "reduced fat," "low fat," "light," or "part-skim." These have less fat per ounce than the regular versions.
- When shopping for soft cheeses, choose low fat (1 percent) or nonfat cottage cheese, farmer cheese, pot cheese, or part-skim or "light" ricotta. These cheeses have less fat per ounce than the whole milk versions.
- Use low fat or nonfat yogurt; try it in recipes or as a topping.
- Try low fat or nonfat sour cream or cream cheese blends for spreads, toppings, or in recipes.

Preparation tips:

- Try low fat cheese in casseroles, or try a sharp-flavored regular cheese and use less than the recipe calls for. Save most of the cheese for the top.
- Use skim, 1 percent, or evaporated skim milk for creamed soups or white sauces.

Eggs

Buying tips:

- Eggs are included in many processed foods and baked goods. Look at the nutrition label to check the cholesterol content.
- Try egg substitutes.

Preparation tips:

- Egg whites have no cholesterol, so try substituting them for whole eggs in recipes: two egg whites are equal to one whole egg. Or, use egg substitutes.

Fruits and vegetables

Buying tips:

- Buy fruits and vegetables often—fresh, frozen, or canned. They have no cholesterol and most are low in saturated fat. Also, most fruits and vegetables, except avocados, coconut, and olives are low in total fat.

Preparation tips:

- Use fruits as a snack or dessert.
- Prepare vegetables as snacks, side dishes, and salads. Season with herbs, spices, lemon juice, or fat free or low fat mayonnaise. Limit use of regular mayonnaise, salad dressings, and cream, cheese, or other fatty sauces.

A WORD ABOUT MARGARINE

You may have heard that margarine has a type of unsaturated fat called "trans" fat. "Trans" fats appear to raise blood cholesterol more than other unsaturated fats, but not as much as saturated fats. "Trans" fats are formed when vegetable oil is hardened or "hydrogenated" to make margarine or shortening. The harder the margarine or shortening, the more likely it is to contain more "trans" fat. Read the ingredient label to choose margarines containing liquid vegetable oil as the first ingredient rather than hydrogenated or partially hydrogenated oil. Use the nutrition label to choose margarines with the least amount of saturated fat.

Breads, cereals, pasta, rice and other grains, and dry peas and beans

Buying tips:

- Use whole-grain breads, rolls, and cereals often.

- Limit baked goods like these that are made with large amounts of fat, especially saturated fat:
  - Croissants
  - Biscuits
  - Doughnuts
  - Butter rolls
  - Muffins
  - Coffee cake
  - Danish pastry

  Be aware that some baked goods contain palm, palm kernel, and coconut oils. These oils are high in saturated fats, even though they are vegetable oils.

- Choose ready-to-eat cereals often. Most are low in saturated fat, except for granola, muesli, or oat bran types made with coconut or coconut oil.

- Buy dry peas and beans often. They are low in saturated fat and total fat and high in fiber.

Preparation tips:

- Try pasta or rice in soups, or with low fat sauces as main dishes or casseroles.

- Stretch meat dishes with pasta or vegetables for hearty meals. You can use less meat this way and still have the flavor.

- Bake your own muffins and quick breads using unsaturated vegetable oils; substitute two egg whites for each egg yolk, or use egg substitutes. Experiment with substituting applesauce for oil or cut back the amount of oil in the recipe. For each two cups of flour, you only need 1/4 cup of vegetable oil.

- Use dry peas and beans as the main ingredient in casseroles, soups, or other one-dish meals. They are excellent sources of protein and fiber.

Fats and oils

Buying tips:

- Choose liquid vegetable oils high in unsaturated fat for cooking and in salad dressings. Examples are canola, corn, olive, peanut, safflower, sesame, soybean, and sunflower oils.

- Buy light or nonfat mayonnaise instead of the regular kinds that are high in fat.

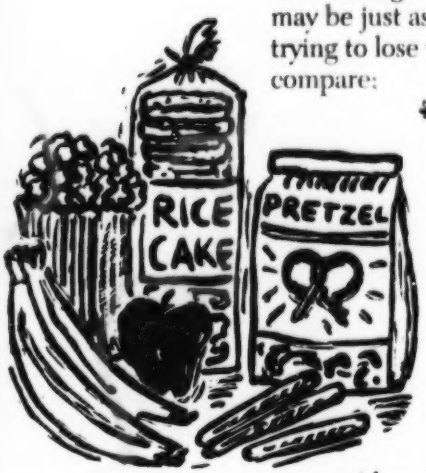
Preparation tips:

- In cooking, limit butter, lard, fatback, and solid vegetable shortenings.
- When using fats and oils, use only small amounts and substitute those high in unsaturated fat for those high in saturated fat.
- For a spread, use tub or liquid margarine, or vegetable oil spread instead of butter.
- Flavor cooked vegetables with herbs or butter-flavored seasoning.

Sweets and snacks
(have only now and then)

Buying tips:

- Choose these low fat sweets for a special treat:
  - brownies, cakes, cheesecakes, cupcakes, and pastries labeled "fat free" or "low fat." Even though they have less fat, they still may be just as high in calories. If you are trying to lose weight, read the label to compare;
  - animal crackers, devil's food cookies, fig and other fruit bars, ginger snaps, graham crackers, and vanilla or lemon wafers;
  - frozen low fat or nonfat yogurt, fruit ices, ice milk, popsicles, sherbet, and sorbet; and
  - gelatin desserts.



- Try these low fat snacks:
  - bagels, bread sticks, melba toast, rice cakes, rye crisp, and soda crackers;
  - unsweetened, ready-to-eat cereals;
  - fresh fruit, fruit leather, or other dried fruit;
  - pretzels, no-oil baked tortilla chips; and
  - plain, air-popped popcorn.

Preparation tips:

- Freeze grapes or banana slices for treats.
- Make puddings with skim or 1 percent milk.
- Top angel food cake with fruit puree or fresh fruit slices.
- Cut up raw vegetables and serve with a low fat dip.
- Make air-popped or "light" microwave popcorn.

Read food labels

Reading food labels can help you and your family eat the heart-healthy way. Food labels have two important parts: the nutrition label and the ingredients list. Also, some labels have claims like "low fat" or "light."

Look on the nutrition label for the amount of saturated fat, total fat, cholesterol, and total calories in a serving of the product. Use this information to compare similar products and find the ones with the smallest amounts.

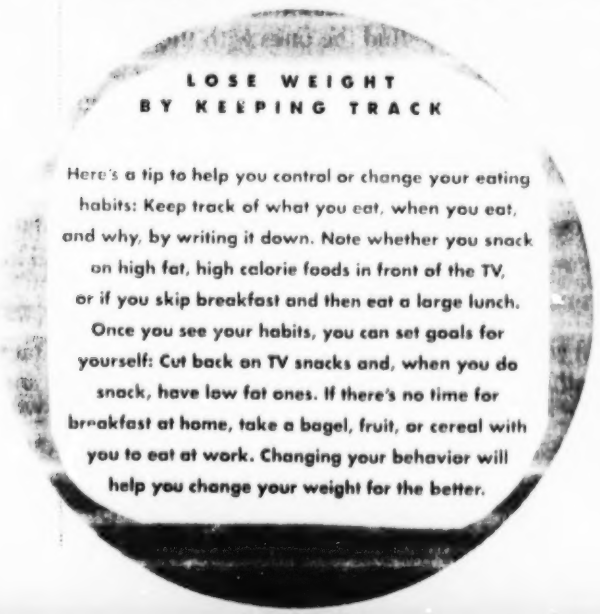
If there is no nutrition label, look for the list of ingredients. Here, the ingredient in the greatest amount is shown first and the ingredient in the least amount is shown last. So, to choose foods low in saturated fat or total fat, go easy on products that list fats or oil first—or that list many fat and oil ingredients.

In addition to the nutrition information and ingredients list, some food packages have claims like "low fat," "light," or "fat free." See page 19 for a list of these claims and what they mean. And for more detailed information on reading labels, order *Step by Step: Eating To Lower Your High Blood cholesterol (see page 13).*

Eat out the heart-healthy way

Whether your family is eating on the run or sitting down together to a full course meal, you can make choices that are low in saturated fat and cholesterol. These tips will help:

- Choose restaurants that have low fat, low cholesterol menu items. Don't be afraid to ask for foods that follow your eating pattern: It's your right as a paying customer.
- Select poultry, fish, or meat that is broiled, grilled, baked, steamed, or poached rather than fried. Choose lean deli meats like fresh turkey or lean roast beef instead of higher fat cuts like salami or bologna.
- Look for vegetables seasoned with herbs or spices rather than butter, sour cream, or cheese. Ask for sauces on the side.
- Order a low fat dessert like sherbet, fruit ice, sorbet, or low fat frozen yogurt.
- Control serving sizes by asking for a small serving, sharing a dish, or taking some home.


LOSE WEIGHT
BY KEEPING TRACK
Here's a tip to help you control or change your eating habits: Keep track of what you eat, when you eat, and why, by writing it down. Note whether you snack on high fat, high calorie foods in front of the TV, or if you skip breakfast and then eat a large lunch. Once you see your habits, you can set goals for yourself: Cut back on TV snacks and, when you do snack, have low fat ones. If there's no time for breakfast at home, take a bagel, fruit, or cereal with you to eat at work. Changing your behavior will help you change your weight for the better.

CALORIES BURNED DURING PHYSICAL ACTIVITIES*

Activity	Calories Burned in an Hour* Man**	Woman**
Light activity: Cleaning house, Office work, Playing baseball, Playing golf	300	240
Moderate activity: Walking briskly (3.5 mph), Gardening, Cycling (5.5 mph), Dancing, Playing basketball	460	370
Strenuous activity: Jogging (9 min./mile), Playing football, Swimming	730	580
Very strenuous activity: Running (7 min./mile), Racquetball, Skiing	920	740

* May vary depending on a variety of factors including environmental conditions.
** Healthy man, 175 pounds; healthy woman, 140 pounds.

Source: Dietary Guidelines for Americans, U.S. Department of Agriculture, U.S. Department of Health and Human Services, third edition, 1990 (adapted from McArdle, et al., "Exercise Physiology," 1986).

- At fast food restaurants, go for grilled chicken, and lean roast beef sandwiches or lean plain hamburgers (but remember to hold the fatty sauces), salads with low fat salad dressing, low fat milk, and low fat frozen yogurt. Pizza topped with vegetables is another good choice. Eat these less often: combination burgers, fried chicken and fish, french fries, milkshakes, and regular salad dressings.

Make Physical Activity Part of Your Routine

Regular physical activity improves cholesterol levels: It helps to lower LDL and raise HDL. It can also help you lose weight, if you are overweight. But you don't have to train like a

long distance runner to benefit: Even doing any physical activity for just a few minutes each day is better than none at all. Try to build physical activity into your daily routine in ways like these:

- Take a walk at lunch time or after dinner.
- Use the stairs instead of the elevator.
- Get off the bus one or two stops early and walk the rest of the way.
- Park farther away from the store.
- Ride a bike.
- Work in the yard or garden.
- Go dancing.

Try to be active as a family: Take trips that include hiking, swimming, or skiing. Use your back yard or the park for games like badminton, basketball, football, or volleyball.

Vigorous activities like brisk walking, running, swimming, or jumping rope are called "aerobic." They are especially good for the health of your heart and can burn off extra calories. Aerobic activities can condition your heart if you do them for at least 30 minutes, three to four times a week. But even if you don't have 30 minutes, three to four times a week, try to find two 15-minute periods or even three 10-minute periods.

Most people do not need to see a doctor before they start being active, especially if they start off slowly and work up gradually to a sensible plan. But you should get advice from your doctor beforehand if any of these conditions apply to you: if you have a medical condition; if you have pains or pressure in the chest or shoulder area; if you tend to feel dizzy or faint; if you get very breathless after a mild workout; and if you are middle-aged or older, have not been physically active, and plan a fairly strenuous exercise program.

Lose Weight Sensibly

If you are overweight, losing even 5 to 10 pounds can improve your blood cholesterol levels. But don't go on a crash diet: The healthiest and longest-lasting weight loss happens when you take it slowly, losing 1/2 to 1 pound a week. If you cut 500 calories a day by eating less and being more active, you should lose 1 pound (which amounts to about 3,500 calories) in a week. (Overweight children and adolescents should not be put on strict weight loss diets; consult your family doctor if this is a concern.)

A heart-healthy eating plan can help you lose weight because cutting down on fat is a good way to cut down on calories. And, if you are overweight, you should take care to eat foods high in starch and fiber (like vegetables, fruits, and breads and cereals) instead of high fat foods. Choose low fat and low calorie items from each food group; the food chart in the back will help. Finally, you'll need to limit the amount—or serving sizes—as well.

But there's more to losing weight than just eating less. The most successful weight-loss programs are those that combine diet and increased physical activity. A low fat, low calorie way of eating combined with increased physical activity can help you lose more weight and keep it off longer than either way can achieve alone. See the box on page 10 for some ideas for physical activities.

In Case You Were Wondering...

...What About Cholesterol Levels in Children?

Most children do not need to have their blood cholesterol checked. But, all children should be encouraged to eat in a heart-healthy way along with the rest of the family. Children who should be tested at age 2 or older include those who have any of these conditions:

- at least one parent who has been found to have high blood cholesterol (240 mg/dL or greater), or
- a family history of early heart disease (before age 55 in a parent or grandparent).

Also, if the parent's medical history is not known, the doctor may want to check the child's blood cholesterol level, especially in children with other risk factors like obesity.

TOTAL AND LDL-CHOLESTEROL LEVELS IN CHILDREN AND TEENAGERS FROM FAMILIES WITH HIGH BLOOD CHOLESTEROL OR EARLY HEART DISEASE

	Total Cholesterol	LDL-Cholesterol
Acceptable	Less than 170 mg/dL	Less than 110 mg/dL
Borderline	170 to 199 mg/dL	110-129 mg/dL
High	200 mg/dL or greater	130 mg/dL or greater

Note: These blood cholesterol levels apply to children 2 to 19 years old.

...How High Is a Child's "High" Blood Cholesterol?

If your child does need to have a cholesterol test, it can be part of a regular doctor's visit. Your doctor will likely measure your child's total cholesterol level first. However, if your family has a history of early heart disease, the doctor may measure the LDL-cholesterol level right from the start. Otherwise, your child's LDL-cholesterol level should be measured if his or her total cholesterol level was checked and found to be 170 mg/dL or greater. The blood cholesterol categories for children from families with high blood cholesterol or early heart disease are shown in the box below.

...Should You Know Your Cholesterol Ratio?

When you have your cholesterol checked, some laboratories may give you a number called a cholesterol ratio. This number is your total cholesterol or LDL level divided by your HDL level. The idea is that combining the levels into one number gives you an overall view of your risk for heart disease. But the ratio is too general: It is more important to know the value for each level separately because LDL- and HDL-cholesterol both predict your risk of heart disease.

...What Are Triglycerides?

Triglycerides are the form in which fat is carried through your blood to the tissues. The bulk of your body's fat tissue is in the form of triglycerides. Your triglycerides are measured whenever your LDL-cholesterol is checked. Triglyceride levels less than 200 mg/dL are considered normal.

It is not clear whether high triglycerides alone increase your risk of heart disease. But many people with high triglycerides also have high LDL or low HDL levels, which do increase the risk of heart disease.

...Will Lowering My Blood Cholesterol Help Me Live Longer?

Many studies show that lowering cholesterol levels reduces the risk of illness or death from heart disease, which kills more men and women each year than any other illness. If you have heart disease, lowering your cholesterol level will probably help you to live longer. If you don't have heart disease, the studies so far do not show that you will live longer, but you will definitely reduce your risk of illness and death from heart attack.

...Is It Safe To Eat in a Heart-Healthy Way?

Eating in a way that is lower in saturated fat and cholesterol is safe and can be more nutritious than an eating plan higher in saturated fat and cholesterol. It will even meet the higher needs that women, children, and teenagers have for nutrients like calcium, iron, and zinc, and an eating pattern lower in total fat will reduce the risk for other chronic diseases, such as cancer. And an eating pattern lower in saturated fat, total fat, and cholesterol can still provide enough calories for the proper growth and development of children ages 2 and above. Children younger than 2 years have special nutrient needs for fat.

...How Much Will Your Cholesterol Levels Change?

Generally your blood cholesterol level should begin to drop a few weeks after you start eating the heart-healthy way. How much it drops depends on the amount of saturated fat you used to eat, how high your high blood cholesterol is, how much weight you lose if you are overweight, and how your body responds to the changes you make. Over time, you may reduce your cholesterol level by 5 to 35 mg/dL or even more.

How To Find Out More

The National Cholesterol Education Program (NCEP) has other booklets for the public and health professionals on lowering blood cholesterol. Most are free of charge. The NCEP has booklets for adults with high blood cholesterol, age-specific booklets for children and adolescents with high blood cholesterol and their parents, and a pamphlet on physical activity and how to get started. To order publications on cholesterol, weight and physical activity or request a catalog, write to the address below:

NHLBI Information Center
P.O. Box 30105
Bethesda, MD 20824-0105

TABLE 1:

A COMPARISON OF SATURATED FAT, TOTAL FAT, CHOLESTEROL, CALORIES, AND SODIUM IN FOODS

This table gives the saturated fat, total fat, cholesterol, calories, and sodium for some basic foods. Remember, there are 9 calories in each gram of fat. The foods within each group are ranked from low-to-high saturated fat. Choose most often the foods from the top part of each group; they are lower in saturated fat and cholesterol. The examples are meant to show the differences in fat and cholesterol in select foods.

Product	Saturated Fat (grams)	Cholesterol (mgs)	Total Fat (grams)	Total Calories	Sodium (mgs)
Poultry, Fish, and [illegible]					
Beef (Fat trimmed to 1/8 in. unless otherwise noted)					
Liver, beef, braised*	2	331	4	137	60
Eye of round, roasted	3	60	8	171	52
Top round, broiled	3	73	8	185	51
Top sirloin, broiled	5	77	13	204	52
Ground, extra lean, broiled medium	6	71	14	217	59
Ground, lean, broiled medium	7	74	16	231	65
Salami, cooked (3 oz. is about 4 slices, 4-in. around, 1/8 in. thick)	7	51	17	216	984
Chuck, arm pot roast, braised	8	86	19	277	52
Short loin, T-bone steak, broiled (1/4 in. trim)	9	70	18	253	52
Chuck, blade roast, braised	9	88	23	308	56
*Liver and most organ meats are low in fat but high in cholesterol					
Lamb (Fat trimmed to 1/8 in.)					
Leg, whole, roasted	5	79	12	207	58
Loin, broiled	7	81	16	229	71
Shoulder, arm, braised	8	103	19	289	62
Pork (fresh unless noted otherwise) (Fat trimmed to 1/4 in.)					
Cured, ham steak, boneless, extra lean, cooked, served cold	1	39	4	105	1,080
Loin, tenderloin, roasted	2	67	5	147	47
Leg (ham), rump half, roasted	5	81	12	214	52
Cured, shoulder, arm picnic, roasted	7	49	18	238	912
Ground pork, cooked	7	80	18	252	62
Chicken					
Chicken, roasting, light meat without skin, roasted	1	64	4	130	43
Breast, without skin (3 oz. is about 1/2)	1	72	3	140	63
Chicken roll, light meat, about 2 slices or 2 oz.	1	27	4	87	321
Drumstick, without skin (3 oz. is about 2)	2	79	5	146	81
Breast, with skin (3 oz. is about 1/2)	2	71	7	168	60
Wing, without skin (3 oz. is about 4)	2	72	7	173	78
Chicken, roasting, dark meat without skin, roasted	3	63	7	152	81
Drumstick, with skin (3 oz. is about 1 1/2)	3	77	10	184	77
Thigh, without skin (3 oz. is about 1 1/2)	3	81	9	178	75
Chicken hot dog, about 1	3	55	11	142	754
Thigh, with skin (3 oz. is about 1 1/2)	4	79	13	210	71
Wing, with skin (3 oz. is about 2 1/2)	5	71	17	247	70
Turkey					
Breast, without skin	<1	71	<1	115	44
Breast, with skin	<1	77	3	130	45

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Product	Saturated Fat (grams)	Cholesterol (mgs)	Total Fat (grams)	Total Calories	Sodium (mgs)
Wing, without skin	1	87	3	139	66
Leg, without skin	1	101	3	135	69
Turkey roll, light meat, about 2 slices or 2 oz.	1	23	4	81	269
Leg, with skin	1	60	5	145	68
Wing, with skin	2	98	8	176	62
Ground turkey, meat and skin, cooked	3	87	11	200	90
Turkey bologna, about 2 slices or 2 oz.	n/a	54	8	110	483
Turkey hot dog, about 1	n/a	59	10	125	785
Fish (baked, broiled, or microwaved)					
Haddock	<1	63	<1	95	74
Halibut	<1	35	3	119	59
Bluefin tuna, fresh	1	42	5	157	43
Sockeye salmon	2	74	9	183	56
Shellfish (steamed, poached, or boiled)					
Northern lobster	<1	61	<1	83	323
Clams	<1	57	2	126	95
Clams, canned, drained solids	<1	57	2	126	95
Shrimp	<1	167	1	85	192
Oyster	1	89	4	116	359
Milk (1 cup)					
Skim milk	<1	4	<1	86	126
Buttermilk	1	9	2	99	257
Low fat milk, 1% fat	2	10	3	102	123
Low fat milk, 2% fat	3	18	5	121	122
Whole milk, 3.3% fat	5	33	8	150	120
Yogurt (1 cup)					
Plain yogurt, nonfat	<1	4	<1	127	174
Plain yogurt, low fat	2	14	4	144	160
Plain yogurt, whole milk	5	29	7	139	105
Soft cheeses (1 oz.)					
Pot cheese or uncreamed dry curd cottage cheese, 1/3 cup	<1	3	<1	41	189
Cottage cheese, low fat (1%), 1/2 cup	<1	5	1	82	459
Ricotta, part-skim (1/4 cup)	3	19	5	86	78
Cottage cheese, creamed, 1/2 cup	3	17	5	117	457
Ricotta, whole milk, 1/4 cup	5	32	8	108	52
Hard cheeses (1 oz.)					
Fat free, low cholesterol imitation cheese	<1	1	<1	41	439
Swiss cheese, reduced fat	3	9	4	70	35

Product	Saturated Fat (grams)	Cholesterol (mgs)	Total Fat (grams)	Total Calories	Sodium (mgs)
Reduced fat and low sodium cheese—American, cheddar, colby, monterey jack, muenster, or provolone**	3	18	4	71	88
Mozzarella, part-skim	3	16	5	72	132
Reduced fat cheese—American, cheddar, colby, monterey jack, muenster, provolone, or string cheese**	3	15	5	79	150
Mozzarella	4	22	6	80	106
Swiss	5	26	8	107	74
American processed cheese, pasteurized	6	27	9	106	406
Cheddar	6	30	9	114	176

** The nutrient values shown for these cheeses are averages of the different types and brands.

Egg white (1)	0	0	0	17	55
Egg yolk (1)	2	213	5	59	7

Nuts and Seeds (1 ounce—about 1/4 cup—unless noted otherwise)
(Note: All nuts and seeds are unsalted)

Almonds	1	0	15	167	3
Sunflower seed kernels, roasted	2	0	14	165	1
Pecans	2	0	19	190	0
English walnuts	2	0	17	182	3
Pistachio nuts	2	0	14	164	2
Peanuts	2	0	14	159	5
Peanut butter, smooth, made with added salt, 2 Tbsp.	3	0	16	190	149
Brazil nuts	5	0	19	186	0

Breads, Cereals, Pasta, Rice, and Dry Peas and Beans

Breads

Corn tortilla, 1 (6-7 in. around)	<1	0	<1	56	40
English muffin, 1 muffin	<1	0	1	134	265
Bagel, plain, 1 (3 1/2 in.)	<1	0	1	195	379
Whole wheat bread, 1 slice	<1	0	1	70	149
Hamburger or hotdog bun, plain, 1	<1	0	2	123	241
Croissant, butter, 1 medium (4 1/2 x 4 x 1 3/4 in.)	7	0	12	232	424

Cereals

Oatmeal, instant, (1 packet, 3/4 cup)	<1	0	2	108	180
Oatmeal, quick, cooked without salt, 1 cup	<1	0	2	145	1
Corn flakes, 1 cup	n/a	0	<1	98	240
Granola, 1/2 cup	3	0	17	298	6

Pasta (1 cup cooked)

Spaghetti or macaroni	<1	0	1	197	1***
Egg noodles	<1	53	2	212	11***

Product	Saturated Fat (grams)	Cholesterol (mgs)	Total Fat (grams)	Total Calories	Sodium (mgs)
Grains (1 cup cooked)					
White rice	<1	0	<1	205	[illegible]
Brown rice	<1	0	2	216	[illegible]
Dry Peas and Beans (1/2 cup cooked)					
Kidney beans, canned, solids, and liquid	<1	0	<1	104	445****
Kidney beans, dry	<1	0	1	112	2
Garbanzo beans/chickpeas, canned, solids, and liquid	<1	0	1	143	359****
Black-eyed peas, canned, solids, and liquid	<1	0	<1	92	359****
*** Pasta cooked without salt.					
****Rinsing canned beans and peas with water will reduce the sodium content.					
Fruit, raw					
Peach, 1	<1	0	<1	37	0
Orange, 1	<1	0	<1	62	0
Apple, 1	<1	0	<1	81	1
Banana, 1	<1	0	<1	105	1
Avocado, 1/6 (or 2 Tbsp.)	<1	0	5	54	4
Vegetable, cooked (1/2 cup)					
Potato	<1	0	<1	68	3
Corn	<1	0	1	89	14
Carrot	<1	0	<1	35	32
Broccoli	<1	0	<1	23	8
Hard candy (1 oz.)	0	0	0	106	11
Angel food cake, purchased, 1/12 of 9 in. cake	0	0	<1	73	212
Ginger snap, 1 (about 1/4 oz.)	<1	0	<1	29	46
Frozen yogurt, fruit or vanilla, nonfat (1/2 cup)	<1	2	<1	82	39
Vanilla wafer, 1	<1	2	<1	18	12
Fig bar, 1 (about 1/2 oz.)	<1	0	1	56	56
Pretzels, salted (1 ounce, about 5 twists, 3 1/4 x 2 1/4 x1/4 in.)	<1	0	1	108	486
Popcorn, air popped without salt (1 oz. is about 3 1/2 cups)	<1	0	1	108	1
Chocolate chip cookie, 1 (2 1/4 in. around)	<1	0	2	48	32
Sherbet, orange, (1/2 cup)	1	5	2	132	44
Ice milk, vanilla, hard, (1/2 cup)	2	9	3	92	56
Potato chips (1 oz.)	3	0	10	152	168
Pound cake, purchased, 1/10 of 10.75 oz. cake	3	66	6	117	119
Ice cream, vanilla, regular, (1/2 cup)	5	29	7	132	53

Product	Saturated Fat (grams)	Cholesterol (mgs)	Total Fat (grams)	Total Calories	Sodium (mgs)
Fast Foods					
Tossed salad, no dressing, 1 1/2 cup	0	0	<1	32	53
Grilled chicken sandwich	1	60	7	288	758
Cheese pizza, 1/8 of 12 in. pizza	2	9	3	140	336
Roast beef sandwich, plain	4	52	14	346	792
French fries, regular order	4	0	12	235	124
Hamburger, plain	4	36	12	275	387
Hot dog	5	44	15	242	671
Fish sandwich with tartar sauce	5	55	23	431	615
Chicken, breaded and fried, boneless pieces, 6	6	62	18	290	542
Cheeseburger, plain, single patty	7	50	15	320	500
Chicken fillet sandwich, plain	9	60	30	515	957
Egg & bacon biscuit, 1	10	353	31	457	999
Cheeseburger, large, double patty with condiments	18	141	44	706	1,149

	Saturated Fat (grams)	Cholesterol (mgs)	Polyunsaturated Fat (grams)	Monounsaturated Fat (grams)
Fats and Oils (1 Tbsp.)				
Margarine, diet	1	0	2	3
Canola oil	1	0	4	9
Safflower oil	1	0	11	2
Corn oil	2	0	8	4
Olive oil	2	0	1	10
Margarine, soft, tub	2	0	5	4
Margarine, liquid, bottled	2	0	5	4
Margarine, stick	2	0	4	5
Lard	5	12	2	6
Butter	7	28	<1	3

in. = inches
oz. = ounces
Tbsp. = tablespoon
< = less than
n/a = not available

Sources:

Composition of Foods - Raw-Processed-Prepared, Agriculture Handbook 8. Series and Supplements. United States Department of Agriculture, Human Nutrition Information Service.

New beef and lamb nutrient data for cuts trimmed to 1/8 in. external fat. United States Department of Agriculture, Human Nutrition Information Service, unpublished data, 1994.

Minnesota Nutrition Data System (NDS) software, developed by the Nutrition Coordinating Center, University of Minnesota, Minneapolis, MN. Food Database version 5A, Nutrient Database version 20.

TABLE 2:

THE LOW-DOWN ON FOOD LABEL CLAIMS

Here are the main label claims used on food packages—and what they mean:

Saturated Fat —

***Saturated [illegible] free: Less than 1/2 gram saturated fat in a serving; levels of trans fatty acids must be not more than 1 percent of total fat.**

****Low saturated fat: 1 gram saturated fat or less in a serving and 15 percent or less of calories from saturated fat. For a meal or main dish (like a frozen dinner): 1 gram saturated fat or less in 100 grams of food and less than 10 percent of calories from saturated fat.**

Cholesterol —

***Cholesterol free: Less than 2 milligrams (mg) cholesterol in a serving; saturated fat content must be 2 grams or less in a serving.**

****Low cholesterol: 20 mg cholesterol or less in a serving; saturated fat content must be 2 grams or less in a serving. For a meal or main dish: 20 mg cholesterol or less in 100 grams of food, with saturated fat content less than 2 grams in 100 grams of food.**

Fat —

***Fat free: Less than 1/2 gram fat in a serving.**

****Low fat: 3 grams total fat or less in a serving. For a meal or main dish: 3 grams total fat or less in 100 grams of food and not more than 30 percent calories from fat.**

Percent fat free — A food with this claim must also meet the low fat claim.

Calories —

***Calorie free: Less than 5 calories in a serving.**

****Low calorie: 40 calories or less in a serving.**

Sodium —

***Sodium free: Less than 5 mg sodium in a serving.**

****Low sodium: 140 mg sodium or less in a serving. For a meal or main dish: 140 mg sodium or less in 100 grams of food.**

Very low sodium: 35 mg sodium or less in a serving.

**** Words that mean the same thing as free: "no," "zero," "without," "trivial source of," "negligible source of," and "dietarily insignificant source of."***

***** Words that mean the same thing as low: "contains a small amount of" and "low source of."***

Light — A product has been changed to have half the fat or one-third fewer calories than the regular product; or the sodium in a low calorie, low fat food has been cut by 50 percent; or a meal or main dish is low fat or low calorie.

"Light" also may be used to describe things like the color or texture of a food, as long as the label explains this: for example, "light brown sugar" or "light and fluffy."

Reduced/Less/Lower/Fewer — A food (like a lower-fat hot dog or a lower-sodium cracker) has at least 25 percent less of something like calories, fat, saturated fat, cholesterol, or sodium than the regular food or a similar food to which it is compared.

Lean and Extra Lean — Two terms—"lean" and "extra lean"—are used to describe the fat content of meat, poultry, fish, and shellfish:

Lean — Less than 10 grams fat, 4.5 grams or less of saturated fat, and less than 95 mg cholesterol in a serving.

Extra lean — Less than 5 grams fat, less than 2 grams saturated fat, and less than 95 mg cholesterol in a serving.

TABLE 3:

RECOMMENDED AMOUNTS OF SATURATED FAT AND TOTAL FAT

Calories	1,200	1,500	1,800	2,000	2,500
Saturated Fat*, in grams	12	15	18	20	25
Total Fat**, in grams	40	50	60	65	80

*Amounts are equal to 9 percent of total calories; the recommendation is to eat less than 10 percent of total calories as saturated fat. Remember, 1 gram of fat is equal to 9 calories.

**Amounts are equal to 30 percent of total calories (rounded down to the nearest 5); the recommendation is to eat this much or less.

Note: On average, women consume about 1,800 calories a day and men consume about 2,500 calories a day.

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NHLBI Obesity Education Initiative

Coordinated by the National Heart, Lung, and Blood Institute